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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,931	07/20/2001	Robert Olson Aberg	04899-049001	2408

959 7590 04/21/2005

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EXAMINER	
RAMPURIA, SATISH	

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/909,931	ABERG, ROBERT OLSON	
	Examiner	Art Unit	
	Satish S. Rampuria	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This action is in response to the amendment received on 10/26/2005.
2. Claims cancelled by the applicant: None.
3. Claims amended by the applicant: None.
4. Claims pending in the application: 1-21.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 17-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are non-statutory because the language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a tangible result. The claims recite software components for graphical block diagram processing, representing functional descriptive material without a computer readable medium or computer implemented method per se are not tangibly embodied. Claims 17-19 thus amounts to only abstract idea and are nonstatutory.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 16, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,901,221 to Kodosky et al., hereinafter called Kodosky, in view of US Patent No. 5,627,979 to Chang et al., hereinafter called Chang.

Per claims 1-5:

Kodosky disclose:

- A method of block diagram modeling in a data processing system (col. 3, lines 50-51 "The present invention provides a system for modelling a process" and col. 3, line 54 "an editor for displaying at least one diagram"), comprising:
- in a first block, receiving a first value indicative of an index into a lookup table (col. 3, lines 61-63 "an execution subsystem for assigning respective values for the one or more input variables");
- in the first block, generating information indicative of the location of the first value relative to a predefined domain of possible indexed values that define regions (col. 8, lines 58-59 "graphical representations of input controls and output indicators are stored in a memory library" also fig. 5 and related description);
- in a second block, receiving the information generated by the first block (col. 13, lines 29-30 "output data are available for transmission to a next system" also fig. 18 and related description); and
- using the information received in the second block to determine an output value of a first lookup table (col. 13, lines 49-51 "constructing a visual display in which at least one

input variable produces at least output variable according to a displayed procedure").

Kodosky does not explicitly disclose lookup table and index.

However, Chang discloses in an analogous computer system a table is provided to access the information stored in using various types of indexes, record identifiers, link fields and pointers (col. 3, lines 39-50 "data model... provides fixed-length records composed of data fields of various types, indexes, record identifiers and link fields, and pointer structures" and col. 4, lines 19-21 "A table may contain as many foreign keys as links it requires to relate it to other tables with which it has relationships").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of using lookup table and indexes as taught by Chang into the method of block diagram data processing as taught by Kodosky. The modification would be obvious because of one of ordinary skill in the art would be motivated to use the lookup table to map or access the information as suggested by Chang (col. 5, lines 1-10).

Per claim 16:

The rejection of claims 1 is incorporated, and further, Kodosky disclose:

- using the graphical block diagram of the graphical block diagram model as a specification for interpretation by automatic code generation software that generates code to perform computations equivalent to computations performed by the graphical block diagram model (col. 35, lines 57-67 section, Code Generation "Once the data store

schema is mapped to the object schema, the user may use code generators 410 or 420 to generate data access methods for each object interface... the user may have created classes MyEmp and MyDept, created tables EMP and DEPT, and mapped MyEmp to EMP and MyDept to DEPT..." also fig. 5 and related discussion).

Claim 20 is the computer program product claim corresponding to method claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

Claim 21 is the system claim corresponding to method claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

3. Claims 6-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodosky and Chang in view of admitted prior art.

Per claims 6 and 7:

The rejection of claim 1 is incorporated, and further, Kodosky disclose:

- receiving a value indicative of an index into the lookup table and corresponding to a different one of N dimensions (col. 3, lines 61-63 "an execution subsystem for assigning respective values for the one or more input variables");
- generating information indicative of the location of such value relative to the predefined domain of possible index values (col. 8, lines 58-59 "graphical representations of input controls and output indicators are stored in a memory library" also fig. 5 and related description); and

- in the second block, receiving the information generated by each of the N index search blocks (col. 13, lines 29-30 "output data are available for transmission to a next system" also fig. 18 and related description); and
- using the information received in the second block to determine an output value of the first lookup table (col. 13, lines 49-51 "constructing a visual display in which at least one input variable produces at least output variable according to a displayed procedure").

Kodosky does not explicitly disclose N index search block.

However, admitted prior art discloses N index search block (Applicant's specification, page 1, lines 25-26 "One type of block supported by such tools is an n-dimensional interpolation block that performs an index search operation and interpolated table lookup").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of including the N index search block as taught in admitted prior art into the method of block diagram data processing as taught by the combination system by Kodosky and Chang. The modification would be obvious because of one of ordinary skill in the art would be motivated to include N index search block to perform index search operation.

Per claims 8 and 14:

The rejection of claim 1 is incorporated, and further, neither Kodosky nor Chang disclose maintaining in a block library a pre-lookup index search block and an interpolation block that uses output of the pre-lookup index search block for interpolated table lookup; and instantiating

the index search block to create the first block and instantiating the interpolation block to create the second block.

However, admitted prior art discloses maintaining in a block library a pre-lookup index search block and an interpolation block that uses output of the pre-lookup index search block for interpolated table lookup (Applicant's specification, page 1, lines 10-12 "Such blocks may be placed in a reference library to define a graphical class. Graphical libraries are similar to system software libraries in that they are a repository of classes" and page 1, lines 25-26 "One type of block supported by such tools is an n-dimensional interpolation block that performs an index search operation and interpolated table lookup"); and instantiating the index search block to create the first block and instantiating the interpolation block to create the second block (Applicant's specification, page 1, lines 13-14 "When a graphical class is used in a model, it is said to be instantiated, i.e., an instance of the graphical class is created for use in the model")

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of maintaining in a block library and instantiating the index search block as taught in admitted prior art into the method of block diagram data processing as taught in the combination system by Kodosky and Chang. The modification would be obvious because of one of ordinary skill in the art would be motivated to maintain a block library and instantiating the index search block to provide efficiently perform the system.

Per claim 9:

The rejection of claim 8 is incorporated, and further, neither Kodosky nor Chang disclose receiving parameters from a user to instantiate the pre-lookup index search block and the interpolation block.

However, admitted prior art discloses receiving parameters from a user to instantiate the pre-lookup index search block and the interpolation block (Applicant's specification, page 1, lines 16-17 "Parameters are class member data that are specified when a user constructs a new instance of a class").

The feature of receiving parameter from user to instantiate would be obvious for the reasons set forth in the rejection of claim 8.

Per claims 10 and 13:

The rejection of claim 9 is incorporated, and further, neither Kodosky nor Chang disclose receiving comprises providing the user with a dialog box having fields for specifying values of the parameters for the pre-lookup index search block.

However, admitted prior art discloses receiving comprises providing the user with a dialog box having fields for specifying values of the parameters for the pre-lookup index search block (Applicant's specification, page 1, lines 18-20 "On a graphical user interface (or "GUI"), such parameter specification interfaces take the form of a dialog box with various parameter entry fields").

The feature of receiving parameter from user via dialog box would be obvious for the reasons set forth in the rejection of claim 8.

Per claim 11:

The rejection of claim 9 is incorporated, and further, neither Kodosky nor admitted prior art disclose receiving comprises providing the user with a textual API for programmatically specifying values of the parameters.

However, Chang discloses in an analogous computer system receiving comprises providing the user with a textual API for programmatically specifying values of the parameters (col. 8, lines 36-39 "To accomplish this object manipulation through data store access, the Smart Access graphical user interface 310 calls an object-oriented application programing interface (API), Object Call Level Interface, OCLI, 320").

The feature of using API to specify parameter value would be obvious for the reasons set forth in the rejection of claim 8.

Per claim 12:

The rejection of claim 10 is incorporated, and further, neither Kodosky nor Chang disclose the parameters for the pre-lookup index search block comprise breakpoint data.

However, admitted prior art discloses wherein the parameters for the pre-lookup index search block comprise breakpoint data (Applicant's specification, page 1, line 27 "breakpoint data sets have to perform identical index search operations")

The feature of search block comprise breakpoint data would be obvious for the reasons set forth in the rejection of claim 8.

Per claim 19:

Neither Kodosky nor Chang disclose maintaining in a block library an index search block and an interpolation block that uses output of one or more pre-lookup index search blocks; and enabling a user to use the pre-lookup index search and interpolation blocks to build a graphical block diagram model.

However, admitted prior art discloses maintaining in a block library an index search block and an interpolation block that uses output of one or more pre-lookup index search blocks (Applicant's specification, page 1, lines 10-12 "Such blocks may be placed in a reference library to define a graphical class. Graphical libraries are similar to system software libraries in that they are a repository of classes" and page 1, lines 25-26 "One type of block supported by such tools is an n-dimensional interpolation block that performs an index search operation and interpolated table lookup"); and enabling a user to use the pre-lookup index search and interpolation blocks to build a graphical block diagram model ock (Applicant's specification, page 1, lines 13-14 "When a graphical class is used in a model, it is said to be instantiated, i.e., an instance of the graphical class is created for use in the model")

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of maintaining in a block library and instantiating the index search block as taught in admitted prior art into the method of block diagram data processing as taught in the combination system by Kodosky and Chang. The modification would be obvious because of one of ordinary skill in the art would be motivated to maintain a block library and instantiating the index search block to provide efficiently perform the system.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodosky in view of Change and further in view of US Patent No. 5,481,741 to McKaskle et al. (hereinafter called McKaskle).

Per claim 15:

The rejection of claim 1 is incorporated, and further, neither Kodosky nor Chang explicitly disclose wherein the generated information comprises a breakpoint data set index value and a distance fraction value for each dimension and corresponding input value chosen by the user.

However, McKaskle discloses in an analogous computer system wherein the generated information comprises a breakpoint data set (col. 33, lines 49-52 "A "breakpoint" may be set so that a reserved VI enters its "suspended" state when it is about to execute") index value and a distance fraction value for each dimension (col. 62, lines 59-63 "The top input being the actual array, and the bottom input, which receives a 1, being the index where the array is split. The output of this function is two, separate, one dimensional arrays") and corresponding input value chosen by the user (Abstract "A system and method for providing attribute nodes in a data flow diagram which allow a user to programmatically access various parameters of a control or indicator").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of having breakpoint data set index value and a distance fraction value for each dimension and corresponding input value chosen by the user as taught in McKaskle into the method of block diagram data processing as taught in the combination system by Kodosky, Chang, and admitted prior art. The modification would be obvious because of one of ordinary skill in the art would be motivated to having breakpoint data

index value chosen by user to provide enhance technique to user to programmatically control the appearance of the from panel during the execution as taught by McKaskle (col. 5, lines 35-45).

5. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodosky in view of admitted prior art and further in view of McKaskle.

Per claim 17:

Kodosky discloses:

- A method of graphical block diagram processing (col. 3, lines 50-51 "The present invention provides a system for modelling a process" and col. 3, line 54 "an editor for displaying at least one diagram"), comprising;
- receiving as an input a block diagram model that includes interpolation lookup blocks which each perform index search operations and interpolated table lookup (col. 3, lines 61-63 "an execution subsystem for assigning respective values for the one or more input variables");

Kodosky does not explicitly disclose detecting if the interpolation lookup blocks have shared input values and breakpoint data sets.

However, McKaskle discloses in an analogous computer system detecting if the interpolation lookup blocks have shared input values and breakpoint data sets (col. 33, lines 49-52 "A "breakpoint" may be set so that a reserved VI enters its "suspended" state when it is about to execute"). it is interpreted that values must be shared with breakpoint data sets.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of having breakpoint data set shared by lookup blocks as taught in McKaskle into the method of block diagram data processing as taught in the by Kodosky. The modification would be obvious because of one of ordinary skill in the art would be motivated to having breakpoint data index value shared to provide enhance technique to user to programmatically control the appearance of the from panel during the execution as taught by McKaskle (col. 5, lines 35-45).

Kodosky does not explicitly disclose interpreting the block diagram model as if the block diagram model included separate index search blocks and interpolated lookup blocks.

However, admitted prior art discloses interpreting the block diagram model as if the block diagram model included separate index search blocks and interpolated lookup blocks (Applicant's specification, page 1, lines 10-12 "Such blocks may be placed in a reference library to define a graphical class. Graphical libraries are similar to system software libraries in that they are a repository of classes" and page 1, lines 25-26 "One type of block supported by such tools is an n-dimensional interpolation block that performs an index search operation and interpolated table lookup").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of interpreting the block diagram model as if the block diagram model included separate index search blocks and interpolated lookup blocks as taught in admitted prior art into the method of block diagram data processing as taught in the combination system by Kodosky and McKaskle. The modification would be obvious because of

one of ordinary skill in the art would be motivated to interpreting a block diagram and instantiating the index search block to provide efficiently perform the system.

Per claim 18:

The rejection of claim 17 is incorporated, and further, Kodosky disclose:

- using the interpreted graphical block diagram by automatic code generation software that generates code to perform computations equivalent to computations performed by the graphical block diagram model (col. 35, lines 57-67 section, Code Generation "Once the data store schema is mapped to the object schema, the user may use code generators 410 or 420 to generate data access methods for each object interface... the user may have created classes MyEmp and MyDept, created tables EMP and DEPT, and mapped MyEmp to EMP and MyDept to DEPT..." also fig. 5 and related discussion).

Response to Arguments

7. Applicant's arguments with respect to claims have been considered but they are not persuasive.

In the remarks, the applicant has argued that:

(i) Neither Kodosky nor Chang, alone or in combination, discloses, teaches or suggests a first block generating information indicative of a location of an index value relative to a predefined domain of possible index values that define regions, and a second block receiving the information from the first block to determine output value of a lookup table as claimed in claims 1, 20, and 21.

(ii) Neither Kodosky nor Chang, alone or in combination, discloses, teaches or suggests processing a block diagram model that includes interpolation lookup blocks that have shared input values and breakpoint data sets as claimed in claim 17.

(iii) Neither Kodosky nor Chang, alone or in combination, discloses, teaches or suggests maintaining in a block library an interpolation block that uses output of one or more pre-lookup index search blocks as claimed in claim 19.

(iv) Neither Kodosky nor Chang, alone or in combination, discloses, teaches or suggests an index search block that generates information comprising a breakpoint data set index value and distance fraction value for each corresponding input value as claimed in claim 15.

Examiner's response:

(i) Regarding claims 1, 20, and 21, it is noted that the rejection clearly points out where Kodosky and Chang teach the claimed features and why it would have been obvious to combine their teachings. Kodosky discloses modeling program process where the system uses various types of models to generate a graphically representation of a modeled program. The graphically displays a procedure by which the one or more input variables can produce the one or more output variables (see the rejection above). Chang discloses method and system for mapping and accessing objects from conventional data store where the method uses look up table and indexes to refer to data (see the rejection above). Applicant only makes general allegations and does not point out any errors in the rejection. Rather, in response to applicant's arguments

against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the rejection is proper and maintained herein.

(ii) Applicant's arguments with respect to claims 17 have been considered but are moot in view of new ground(s) of rejection.

(iii) Regarding claim 19, it is noted that the rejection clearly points out where Kodosky and Admitted prior art teach the claimed features and why it would have been obvious to combine their teachings. Kodosky discloses modeling program process where the system uses various types of models to generate a graphically representation of a modeled program. The graphically displays a procedure by which the one or more input variables can produce the one or more output variables. Admitted prior art discloses maintaining a block library that is supported by n-dimentional interpolations block that performs an index search operation (see the rejection above). Applicant only makes general allegations and does not point out any errors in the rejection. Rather, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the rejection is proper and maintained herein.

(iv) Applicant's arguments with respect to claims 15 have been considered but are moot in view of new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Satish S. Rampuria** whose telephone number is **(571) 272-3732**. The examiner can normally be reached on **8:30 am to 5:00 pm** Monday to Friday except every other Friday and federal holidays. Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Tuan Q. Dam** can be reached on **(571) 272-3695**. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Satish S. Rampuria
Patent Examiner
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04/18/2005

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